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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YENKE, BRIAN P

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/555,488

Applicant(s)

YU ET AL.

Examiner

BRIAN P. YENKE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment (22 October 2002).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 18-22 and 24 (16-17, 23 and 25-30 all being cancelled) is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18-22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's arguments filed 22 October 2002 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by **Faroudja,**

US 5,754,248.

In considering claim 24,

- 1) *the claimed adaptively filtering...* is met by Vertical LPF 20 (Fig 5) (col 8, line 4-10)
- 2) *the claimed converting said filtered signal to a lower spatial resolution...* is met by downconverter 22 (Fig 5) (col 8, line 10-18), where for example, a now filtered 1500-line signal is downconverted to either a 525 or 625 line signal.
- 3) *the claimed MPEG encoding...* is met by compressor 24 (Fig 5) (col 8, line 18-26, col 6, line 30-34)
- 4) *the claimed conveying said encoded signal to an output channel* is met where the output of encoder (LPF, downconverter and compressor) provides the output video data which is processed by the decoder (Fig 8), wherein the vertical LPF 20 is utilized in

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order to avoid Nyquist undersampling artifacts in the resultant video signal, thus being a function of the image signal parameters prior to filtering.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3a. Claims 1-10 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Faroudja US 5,754,248 in view of Legall et al., US 5,049,993.**

In considering claims 1-10 and 13-14,

a2/b1) the claimed adaptively filtering... is met by Vertical LPF 20 (Fig 5) (col 8, line 4-10)

a4/b2) the claimed converting said filtered signal to a lower resolution... is met by downconverter 22 (Fig 5) (col 8, line 10-18)

a5/b3) the claimed MPEG encoding... is met by compressor 24 (Fig 5) (col 8, line 18-26, col 6, line 30-34)

a6/b4) the claimed conveying said encoded signal to an output channel is met where the output of encoder (LPF, downconverter and compressor) provides the output video data which is processed by the decoder (Fig 8)

However, Faroudja does not specifically disclose converting the first video signal to a different format (a1) and then reconverting the filtered signal to the original format (a3).

Faroudja discloses a system which records or transmits motion picture film sources and non-film interlaced or progressively scanned video sources, any one of several standards (e.g., NTCS, PAL, HDTV/ATV, etc) (col 1, line 6-16), where depending on the origin and type of signal received and the destination of the signal, determines the particular encoding (Fig 1-5) and decoding (Fig 6-15) performed.

Legall et al., teaches converting a video sequence of a high resolution interlaced format to a video sequence of a lower resolution progressive format (col 1, line 6-10). Legall teaches due to bandwidth limitations in the telecommunications network, it is desirable to compress a video sequence to be transmitted.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Faroudja, which uses a universal system which transmits (encodes) and receives (decodes) signals of various standards would have been motivated by Legall to convert an interlaced signal to a progressive signal to reduce the bandwidth of the transmitted signal and then to reconvert the signal in original format for encoding, since the conversion performed was to reduce the bandwidth of the transmitted signal and not the displayed signal.

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3b. Claims 11-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Faroudja US 5,754,248 in view of Legall et al., US 5,049,993 and Scorse et al., US 5,128,776.**

In considering claims 11-12 and 15,
However Faroudja does not specifically disclose the claimed converting said filtered signal to a lower resolution signal having a resolution of 1280 x 1080 samples per frame. Faroudja discloses a downconverter 22 (Fig 5) (col 8, line 10-18) which may downconvert the received signal to 525 or 626 lines or other formats depending on the source and the display being used (col 2, line 37-42).

The conventional MPEG-2 standard, utilizes the MP@HL standard which may have as many as 1,152 active lines per image frame and 1,920 pixels per line and the MP@ML standard which defines a maximum picture size of 720 pixels per line and 567 lines per frame.

The changing/adjusting of a resolution of a video signal is notoriously well-known in the art, where the resolution of a video signal can be reduced by reducing the number of vertical lines and/or reducing the number of active pixels in a horizontal line. The arbitrary selection of a desired number of pixels, is as shown below, simply a design choice, based on transmission means/requirements and display means/requirements, where the resolution of a signal, can take the form of an infinite number of possibilities, since the number of pixels utilized in an image can vary accordingly.

Specifically, Scorse US 5,128,776 discloses a system which permits the operator of a video image system to selectively transmit desired portions of a video image at an operator selected resolution, operator selected compression level and operator selected order of transmission of each of the portions.

Scorse discloses a control/processing unit 16 which processes the video data stored in storage 14 (Fig 1), where processing unit 16 reduces the resolution of the selected signal if desired by the operator (col 4, line 34-64). Where the reduction of the resolution of a video signal reduces the transmission time and thus reduces the bandwidth. The reduction in pixels can be performed in a predetermined manner, where the reduction can be performed by transmitting every other pixel, averaging a group (consecutive or non-consecutive) of pixels (col 6, line 39-60), where the number of active pixels can be reduced from the original resolution/signal.

Therefore, it would be obvious to one of ordinary skill in that art at the time of the invention to modify Faroudja's system which can have as many as 1920 active pixels per line, with Scorse, in order to reduce the number of active pixels from the maximum of 1920 pixels, which would reduce transmission time/bandwidth of the transmitted signal, and maintain picture granularity.

It is also noted by the examiner, the claimed 1280 pixels per line as claimed by applicant, is not supported by the specification by identifying the "Criticality" of the "1280" pixels per line. The examiner has interpreted the arbitrary number of pixels, 1280 in this instance could also be less pixels, i.e., 1270, 1050 or more pixels 1290, 1440 etc.

3c. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Faroudja, US 5,754,248** in view of **Scorse et al., US 5,128,776**.

In considering claim 18,

1) *the claimed adaptively filtering...* is met by Vertical LPF 20 (Fig 5) (col 8, line 4-10)

3) *the claimed MPEG encoding...* is met by compressor 24 (Fig 5) (col 8, line 18-26, col 6, line 30-34)

4) *the claimed conveying said encoded signal to an output channel* is met where the output of encoder (LPF, downconverter and compressor) provides the output video data which is processed by the decoder (Fig 8)

However Faroudja does not specifically disclose the claimed converting said filtered signal to a lower resolution signal having a resolution of 1280 x 1080 samples per frame.

FOR MOTIVATION SEE CLAIM 11, ABOVE.

3d. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lim, US 5,444,491** in view of **Scorse et al., US 5,128,776**.

In considering claims 19-22

1) *the claimed decoding said signal to produce a decoded signal...* is met by receiver 12 (Fig 1) where channel decoder 34 outputs image information to image decoder 36 and transmission format identification to decoder 38 (col 6, line 1-15)

2) *the claimed determining the image resolution...* is met by image decoder 36 (Fig 1)

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4) *the claimed conveying said converted signal to an output device* is met by format transformation means 40 which supplies the transformed image to display 42 (col 6, line 5-10)

However, Lim does not specifically disclose a 1280x1080 format.

Lim discloses a system which transmits/receives various transmission format (Table 1 and 2). Lim also discloses that the number of active lines of pixels in the transmission formats can vary from those listed in the Tables (col 8, line 30-34). Lim discloses that various picture formats can be utilized by conserving the Number of pixels per second keeping the bandwidth within the 6MHz channel for HDTV. Lim discloses the use of HDTV (MPEG-2)but does not disclose the MPEG specification which details the maximum number of lines/pixels per line that can be used.

The changing/adjusting of a resolution of a video signal is notoriously well-known in the art, where the resolution of a video signal can be reduced by reducing the number of vertical lines and/or reducing the number of active pixels in a horizontal line. The arbitrary selection of a desired number of pixels, is as shown below, simply a design choice, based on transmission means/requirements and display means/requirements, where the resolution of a signal, can take the form of an infinite number of possibilities, since the number of pixels utilized in an image can vary accordingly.

Specifically, Score US 5,128,776 discloses a system which permits the operator of a video image system to selectively transmit desired portions of a video image at an

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operator selected resolution, operator selected compression level and operator selected order of transmission of each of the portions. Scorse discloses a control/processing unit 16 which processes the video data stored in storage 14 (Fig 1), where processing unit 16 reduces the resolution of the selected signal if desired by the operator (col 4, line 34-64). Where the reduction of the resolution of a video signal reduces the transmission time and thus reduces the bandwidth. The reduction in pixels can be performed in a predetermined manner, where the reduction can be performed by transmitting every other pixel, averaging a group (consecutive or non-consecutive) of pixels (col 6, line 39-60), where the number of active pixels can be reduced from the original resolution/signal.

Therefore, it would be obvious to one of ordinary skill in that art at the time of the invention to modify Lim's system which can have as many as 1920 active pixels per line, with Scorse, in order to reduce the number of active pixels from the maximum of 1920 pixels, which would reduce transmission time/bandwidth of the transmitted signal, and maintain picture granularity.

It is also noted by the examiner, the claimed 1280 pixels per line as claimed by applicant, is not supported by the specification by identifying the "Criticality" of the "1280" pixels per line. The examiner has interpreted the arbitrary number of pixels, 1280 in this instance could also be less pixels, i.e., 1270, 1050 or more pixels 1290, 1440 etc.

Applicant Arguments

- a) Regarding claim 24, applicant states that Faroudja neither discloses nor suggests adaptive filtering which is a function of image signal parameters as in the present claimed invention. The applicant states that the adaptive filtering in the invention can be adaptively modified depending upon the parameters, where for example, variance in an image frame can be used to segment the image into regions for different processing.
- b) Regarding claims 1-15 applicant states Legall and Faroudja fail to disclose or suggest reversion of the filtered signal to its original signal prior to converting to a lower resolution and encoding.
- c) Regarding claims 11, 12, 15 and 18 , applicant states that the applicant did not understand, the examiner's statement that the "the claimed 1280 pixels per line...is not supported by the specification by identifying the criticality of the 1280 pixels per line.
- d) Regarding claims 19-22 applicant states that the rejection provided by the examiner is based upon an impermissible reconstruction of the Lim Reference in light of (based upon) what is taught by the present application.
- e) Regarding claims 19-22 applicant states Lim is absolutely clear and certain regarding permitted combinations of the number of active lines per frame and pixels per line. Applicant states that in all the 14 examples is based upon the "aspect ratio" of the image to be displayed. Applicant also points out that in addition Lim states that "other aspect ratios could be used".

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f) Regarding claims 19-22 applicant states that Scorse discloses a system (which) permits the operator of a video image system to selectively transmit portions of the video image at an operator selected resolution. The applicant also states, the only thing even resembling a lines per frame to pixels per line relationship disclosed by Scorse et al is the video input signal is often stored in an array which has 768 pixels horizontally and 512 pixel vertically.

Examiners Response

a) The examiner disagrees. Given the broadest interpretation of the claimed invention, Faroudja as stated above in the rejection, vertical LPF 20 is utilized in order to avoid Nyquist undersampling artifacts in the resultant video signal, thus being a function of the image signal parameters prior to filtering.

b) The examiner agrees that Legall nor Faroudja specifically disclose reconversion, however as stated above, in the rejection the reduction of resolution of a transmitted signal is well-known in the art, and depending on the medium/receiver or display used determines whether a signal is converted to a particular resolution, whether the original resolution or different resolution. It would be clearly obvious to one of ordinary skill in the art, to reconvert a signal into an original form, where the original signal was converted to a different form using a predetermined method.

c) The examiner stated that the claimed 1280X1080 picture format, was not supported in the specification as to it's criticality, where it is known that formats have

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greater/less than 1280 lines and greater/less than 1080 pixels per line, as well as it is known that the resolution of a video signal can be adjusted by reducing/increasing the number of lines and/or number of pixels per line. Thus identifying the criticality as to why the 1280x1080 format was unobtainable prior to the applicant's invention, if the adjustment of a resolution (lines/pixels per line) is notoriously well known in the art. As stated in the rejection the conventional MPEG-2 standard, utilizes the MP@HL standard which may have as many as 1,152 active lines per image frame and 1,920 pixels per line and the MP@ML standard which defines a maximum picture size of 720 pixels per line and 567 lines per frame. Therefore, there are an infinite number of combinations of horizontal lines, and pixels per lines which can be utilized based on the needs of the system and user. Thus, the examiner has rejected the claims, since the resolution claimed encompasses notoriously well known standards, and thus could be obtained, as well as an infinite number of resolutions, by adjusting the resolution of a received signal as stated above.

d) In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

e) The examiner disagrees. As stated by the applicant Lim does list 14 actual examples (Tables I, II) and in addition describes the use of video signals where "other aspect ratios could be used". Thus, although Lim lists only 14 actual examples, it would be clearly obvious that other resolutions, which are of a different aspect ratio could be used, where Lim also identifies that notion.

f) The examiner disagrees. As stated above, Scorse US 5,128,776 discloses a system which permits the operator of a video image system to selectively transmit desired portions of a video image at an operator selected resolution, operator selected compression level and operator selected order of transmission of each of the portions. Scorse discloses a control/processing unit 16 which processes the video data stored in storage 14 (Fig 1), where processing unit 16 reduces the resolution of the selected signal if desired by the operator (col 4, line 34-64). Where the reduction of the resolution of a video signal reduces the transmission time and thus reduces the bandwidth. The reduction in pixels can be performed in a predetermined manner, where the reduction can be performed by transmitting every other pixel, averaging a group (consecutive or non-consecutive) of pixels (col 6, line 39-60), where the number of active pixels can be reduced from the original resolution/signal. Thus Scorse, clearly discloses, the reduction of a resolution, where the reduction in pixels can be performed by transmitted every other pixel, averaging a group, to obtain a desired resolution. Also, Scorse discloses that many different schemes can be used to attempt

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to reduce the number of pixels, including averaging in both the horizontal and vertical directions, etc (col 6, line 56-60).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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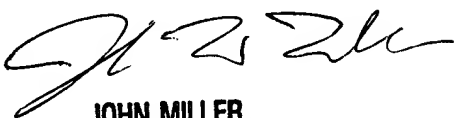
or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 305-4700.

B.P.Y.

04 JANUARY 2003


JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600